REMARKS

Applicants respectfully solicit favorable reconsideration and thence a notice of allowance.

Claims presented

Applicants submit claims 1-3, 6-7 and 9-12 for examination. Amended claim 1 and, similarly, new claim 10, find support in the specification at least at page 7, line 25 to page 8, line 9. Claims 4 and 8 have been cancelled. New claims 11 and 12 find support in the specification at least at page 6, lines 1-9 and page 10, line 22-page 11, line 7.

Traversing the prior art rejections

Applicants respectfully traverse the rejection of claims 5-7 under 35 U.S.C. § 102(b) over U.S. Publication No. 2003/0143772 to Chen (hereinafter "Chen").

Applicants' claims 5-7 are novel because Chen does not disclose or describe "(f) epitaxially growing a compound semiconductor functional layer ... (g) bonding a thermally conductive substrate ... to the surface of the compound semiconductor functional layer (22)" as recited in claim 5. Rather, Chen discloses bonding the conductive substrate 120 on a side of a reflective metal layer 116 opposite that of the epitaxially grown portion 102, 104, 106, 108 and 110. (Chen, Col. 3, lines 50-58). Therefore, there is no disclosure of bonding of a thermally conductive substrate to the surface of a epitaxially grown compound semiconductor functional layer. Therefore, claims 5-7 define a novel invention over Chen.

Further, new claim 10, dependent from claim 5, is added to define that the "the thermally conductive substrate (23) includes a substrate formed with a polycrystalline or amorphous diamond thin film having a thickness of about not more than 300 μm and about not less than 50 μm on a single crystal Si substrate, polycrystalline Si substrate or ceramics substrate". Consideration of new claim 10 is respectfully requested.

Applicants respectfully traverse the rejection of claims 1-3 and 9 under 35 U.S.C. § 103(a) as being unpatentable over JP 6-349731 to Mori (hereinafter "Mori") in view of U.S. Patent No. 4,040,849 to Greskovich (hereinafter "Greskovich").

With regard to claim 1, the applied reference fail to disclose or suggest a method for manufacturing a compound semiconductor substrate wherein the thermally conductive substrate includes "a substrate formed with a polycrystalline or amorphous diamond thin film having a thickness of about not more than 300 μm and about not less than 50 μm on a single crystal Si substrate, polycrystalline Si substrate or ceramics substrate" as presently recited in claim 1.

While Mori is applied as disclosing a method of forming a compound semiconductor laminated structure, the Office Action notes that "Mori does not disclose that the thermally conductive substrate includes at least one selected from the group consisting of a polycrystalline Si substrate obtained be CVD, or sintering process; a substrate formed with a polycrystalline or amorphous diamond thin film having a thickness of about not more than 300 μm and about not less than 50 μm on a single crystal Si substrate, polycrystalline Si substrate or ceramics substrate; and a polycrystalline or amorphous SiC, AlN, and BN obtained by CVD or sintering process." (Office Action, page 4). Thus, as indicated in the Office Action, Mori is distinguished on of its lack of teaching of the diamond thin film of amended claim 1.

Greskovich is applied for its disclosure of a manufacturing process of a support material formed of sintered polycrystalline substrates. The Office Action reasons that it would have be obvious to modify Mori with Greskovich to provide a thermally conductive substrate from sintered polycrystalline Si. However, Greskovich similarly can be distinguished for its lack of teaching of the diamond thin film of amended claim 1.

For at least these reasons, it is respectfully asserted that claim 1 and claims 2-3 and 9, dependent therefrom, are allowable.

Furthermore, according to Mori's disclosed methodology, in order to combine the device portion including InP device layer 6 and the Si supporting board 41, first and second InP layers 21, 25 are provided on the facing portions of device portion and the supporting board, respectively. These portions are heated to desorb P from the InP layers 21, 25 to form metal In layers 26 and 27. The device portion and supporting board are then combined by placing the metal In layers 26, 27 in contact with each other, applying pressure, and raising the temperature above the melting point to fuse the metal In layers (see paragraphs [0057]-[0058]). The supporting board 41 and metal In layers 26, 27 are later removed by polish and selective etching (see [0060]).

New claims 11 and 12, with support from paragraphs [0027] and [0037] of the specification, are additional basis for distinguishing over Mori. Applicants' disclose that the support substrate can be bonded to the semiconductor layer using an adhesive such that the support substrate can later be removed without providing chemical and physical damage to the semiconductor surface (epitaxial growth surface). Further, Applicants disclose that the adhesive may be elector wax or adhesive tape. Therefore, Applicants respectfully submit new claims 11 and 12 define novel inventions over the applied references.

The Office Action has further rejected claims 1-3 and 9 as being unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 7,547,925 to Wong (hereinafter "Wong '925"), in view of U.S. Patent No. 6,916,676 to Sano (hereinafter "Sano"), U.S. Patent No. 6,562,648 to Wong (hereinafter "Wong '648") and Panchula ("Nanocrystalline Aluminum Nitride: II Sintering and Properties, " J.A.Ceram. Soc. 86, 2003, pp. 1121-1127).

Applicants respectfully request the Examiner to reconsider and withdraw this rejection. Wong '925 is not effective prior art against Applicants, and the rejection cannot stand without Wong '925. Since Wong '925 is the primary reference applied in this rejection and the secondary references cannot stand in its absence, it is not presently seen that the secondary references need be addressed at this time.

The present application, was first filed prior to the earliest apparent alleged prior art date for Wong '925 and therefore Wong'925 is not prior art against the present application. The present application has the filing date benefit from PCT/JP2004/016186, which has an international filing date of October 25, **2004**, and claims a foreign priority date of October 27, **2003**. Applicants' PCT date is ***before*** any date alleged for Wong '925. Wong '925 has a later filing date of February 17, **2006** and claims priority to provisional applications, 60/736,362 and 60/736,531, both having a later filing date of November 14, **2005**, all of which filing dates are too late.

Conclusion:

Applicants respectfully submit they have responded to all matters presented in the Office Action and respectfully submit their claims 1-3, 9-12, which include new claims 10-12. define novel and non-obvious inventions over the combination of Mori and Greskovich; claims 5-7 and newly submitted claim 10 define novel inventions over Chen; and the rejection over a combination of references including Wong '925 should be withdrawn for the reasons stated.

Applicants courteously solicit a Notice of Allowance.

Applicants invite the Examiner to contact their representative if she has any questions.

Applicants hereby request a two-month extension of time. The Commissioner is hereby authorized to charge the $490 two-month extension fee to Deposit Account No. 06-1135. The Commissioner is further authorized to charge any required fee not intentionally omitted, including application processing, extension, extra claims, statutory disclaimer, issue, and publication fees, to said Deposit Account No. 06-1135 in connection with Order No. 7372/88130.

The Commissioner is hereby authorized to charge any additional fees which may be required with respect to this communication, or credit any overpayment, to Deposit Account No. 06-1135.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

Dated: March 9, 2010

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